

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/US04/044050

International filing date: 30 December 2004 (30.12.2004)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/533,136
Filing date: 30 December 2003 (30.12.2003)

Date of receipt at the International Bureau: 09 February 2005 (09.02.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse

1278671

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

January 27, 2005

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: 60/533,136

FILING DATE: *December 30, 2003*

RELATED PCT APPLICATION NUMBER: *PCT/US04/44050*



Certified by

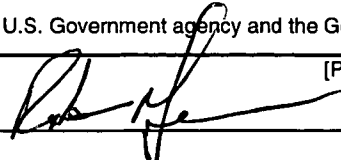
Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Yousef Wasef		Nijim		Carmel, Indiana	
Charles Bryan		Hunt		Westfield, Indiana	
<input checked="" type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
EDGE BLENDING OF MULTIPLE DLP PROJECTORS USING COSINE FUNCTION					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number _____					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		JOSEPH S. TRIPOLI, THOMSON LICENSING INC.			
Address		PATENT OPERATIONS			
Address		P. O. BOX 5312			
City		PRINCETON	State	NJ	ZIP 08543-5312
Country		USA	Telephone	609 - 734-6834	Fax 609 - 734-6888
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 3 <input type="checkbox"/> CD(s), Number _____					
<input type="checkbox"/> Drawing(s) Number of Sheets _____ <input type="checkbox"/> Other (specify) _____					
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 07-0832					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
FILING FEE AMOUNT (\$) 160.00					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,
SIGNATURE

[Page 1 of 2]

Date Dec. 30, 2003

TYPED or PRINTED NAME Robert B. Levy

REGISTRATION NO. 28,234
(if appropriate)

TELEPHONE 609/734-6820

Docket Number: PU030336

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

16563 U.S. PTO
123003031356 U.S. PTO
60/533136

123003

Additional Page

Approved for use through 07/31/2006. OMB 0651-0032

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Docket Number **PU030336**

INVENTOR(S)/APPLICANT(S)		
Given Name (first and middle [if any])	Family or Surname	Residence (City and either State or Foreign Country)
Mark Alan	Schultz	Carmel, Indiana

Number 2 of 2

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

<h2 style="margin: 0;">FEE TRANSMITTAL</h2> <h3 style="margin: 0;">for FY 2004</h3> <p style="font-size: small; margin: 5px 0;">Effective 10/01/2003. Patent fees are subject to annual revision.</p> <p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27</p>		<p>Complete if Known</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Application Number</td><td></td></tr> <tr><td>Filing Date</td><td>December 30, 2003</td></tr> <tr><td>First Named Inventor</td><td>Yousef Wasef Nijim</td></tr> <tr><td>Examiner Name</td><td></td></tr> <tr><td>Art Unit</td><td></td></tr> <tr><td>Attorney Docket No.</td><td>PU030336</td></tr> </table>		Application Number		Filing Date	December 30, 2003	First Named Inventor	Yousef Wasef Nijim	Examiner Name		Art Unit		Attorney Docket No.	PU030336
Application Number															
Filing Date	December 30, 2003														
First Named Inventor	Yousef Wasef Nijim														
Examiner Name															
Art Unit															
Attorney Docket No.	PU030336														
TOTAL AMOUNT OF PAYMENT (\$) 160															

<p>METHOD OF PAYMENT (check all that apply)</p> <p> <input type="checkbox"/> Check <input type="checkbox"/> Credit card <input type="checkbox"/> Money <input type="checkbox"/> Other <input type="checkbox"/> None Order </p> <p><input checked="" type="checkbox"/> Deposit Account:</p> <table style="width: 100%;"> <tr> <td style="width: 20%;">Deposit Account Number</td> <td>07-0832</td> </tr> <tr> <td>Deposit Account Name</td> <td>THOMSON LICENSING INC.</td> </tr> </table> <p>The Director is authorized to: (check all that apply)</p> <p> <input checked="" type="checkbox"/> Charge fee(s) indicated below <input checked="" type="checkbox"/> Credit any overpayments <input type="checkbox"/> Charge any additional fee(s) during the pendency of this application <input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account. </p>					Deposit Account Number	07-0832	Deposit Account Name	THOMSON LICENSING INC.	<p>FEE CALCULATION (continued)</p> <p>3. ADDITIONAL FEES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr><td>1051</td><td>130</td><td>2051</td><td>65</td><td>Surcharge - late filing fee or oath</td><td></td></tr> <tr><td>1052</td><td>50</td><td>2052</td><td>25</td><td>Surcharge - late provisional filing fee or cover sheet.</td><td></td></tr> <tr><td>1053</td><td>130</td><td>1053</td><td>130</td><td>Non-English specification</td><td></td></tr> <tr><td>1812</td><td>2,520</td><td>1812</td><td>2,520</td><td>For filing a request for reexamination</td><td></td></tr> <tr><td>1804</td><td>920*</td><td>1804</td><td>920*</td><td>Requesting publication of SIR prior to Examiner action</td><td></td></tr> <tr><td>1805</td><td>1,840*</td><td>1805</td><td>1,840*</td><td>Requesting publication of SIR after Examiner action</td><td></td></tr> <tr><td>1251</td><td>110</td><td>2251</td><td>55</td><td>Extension for reply within first month</td><td></td></tr> <tr><td>1252</td><td>420</td><td>2252</td><td>210</td><td>Extension for reply within second month</td><td></td></tr> <tr><td>1253</td><td>950</td><td>2253</td><td>475</td><td>Extension for reply within third month</td><td></td></tr> <tr><td>1254</td><td>1,480</td><td>2254</td><td>740</td><td>Extension for reply within fourth month</td><td></td></tr> <tr><td>1255</td><td>2,010</td><td>2255</td><td>1,005</td><td>Extension for reply within fifth month</td><td></td></tr> <tr><td>1401</td><td>330</td><td>2401</td><td>165</td><td>Notice of Appeal</td><td></td></tr> <tr><td>1402</td><td>330</td><td>2402</td><td>165</td><td>Filing a brief in support of an appeal</td><td></td></tr> <tr><td>1403</td><td>290</td><td>2403</td><td>145</td><td>Request for oral hearing</td><td></td></tr> <tr><td>1451</td><td>1,510</td><td>1451</td><td>1,510</td><td>Petition to institute a public use proceeding</td><td></td></tr> <tr><td>1452</td><td>110</td><td>2452</td><td>55</td><td>Petition to revive - unavoidable</td><td></td></tr> <tr><td>1453</td><td>1,330</td><td>2453</td><td>665</td><td>Petition to revive - unintentional</td><td></td></tr> <tr><td>1501</td><td>1,330</td><td>2501</td><td>665</td><td>Utility issue fee (or reissue)</td><td></td></tr> <tr><td>1502</td><td>480</td><td>2502</td><td>240</td><td>Design issue fee</td><td></td></tr> <tr><td>1503</td><td>640</td><td>2503</td><td>320</td><td>Plant issue fee</td><td></td></tr> <tr><td>1460</td><td>130</td><td>1460</td><td>130</td><td>Petitions to the Commissioner</td><td></td></tr> <tr><td>1807</td><td>50</td><td>1807</td><td>50</td><td>Processing fee under 37 CFR 1.17 (q)</td><td></td></tr> <tr><td>1806</td><td>180</td><td>1806</td><td>180</td><td>Submission of Information Disclosure Stmt</td><td></td></tr> <tr><td>8021</td><td>40</td><td>8021</td><td>40</td><td>Recording each patent assignment per property (times number of properties)</td><td></td></tr> <tr><td>1809</td><td>770</td><td>2809</td><td>385</td><td>Filing a submission after final rejection (37 CFR § 1.129(a))</td><td></td></tr> <tr><td>1810</td><td>770</td><td>2810</td><td>385</td><td>For each additional invention to be examined (37 CFR § 1.129(b))</td><td></td></tr> <tr><td>1801</td><td>770</td><td>2801</td><td>385</td><td>Request for Continued Examination (RCE)</td><td></td></tr> <tr><td>1802</td><td>900</td><td>1802</td><td>900</td><td>Request for expedited examination of a design application</td><td></td></tr> </tbody> </table> <p>Other fee (specify) _____</p> <p>*Reduced by Basic Filing Fee Paid SUBTOTAL (3) (\$) 0</p>					Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1051	130	2051	65	Surcharge - late filing fee or oath		1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.		1053	130	1053	130	Non-English specification		1812	2,520	1812	2,520	For filing a request for reexamination		1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action		1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action		1251	110	2251	55	Extension for reply within first month		1252	420	2252	210	Extension for reply within second month		1253	950	2253	475	Extension for reply within third month		1254	1,480	2254	740	Extension for reply within fourth month		1255	2,010	2255	1,005	Extension for reply within fifth month		1401	330	2401	165	Notice of Appeal		1402	330	2402	165	Filing a brief in support of an appeal		1403	290	2403	145	Request for oral hearing		1451	1,510	1451	1,510	Petition to institute a public use proceeding		1452	110	2452	55	Petition to revive - unavoidable		1453	1,330	2453	665	Petition to revive - unintentional		1501	1,330	2501	665	Utility issue fee (or reissue)		1502	480	2502	240	Design issue fee		1503	640	2503	320	Plant issue fee		1460	130	1460	130	Petitions to the Commissioner		1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)		1806	180	1806	180	Submission of Information Disclosure Stmt		8021	40	8021	40	Recording each patent assignment per property (times number of properties)		1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))		1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))		1801	770	2801	385	Request for Continued Examination (RCE)		1802	900	1802	900	Request for expedited examination of a design application	
Deposit Account Number	07-0832																																																																																																																																																																																														
Deposit Account Name	THOMSON LICENSING INC.																																																																																																																																																																																														
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																										
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																												
1051	130	2051	65	Surcharge - late filing fee or oath																																																																																																																																																																																											
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.																																																																																																																																																																																											
1053	130	1053	130	Non-English specification																																																																																																																																																																																											
1812	2,520	1812	2,520	For filing a request for reexamination																																																																																																																																																																																											
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action																																																																																																																																																																																											
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action																																																																																																																																																																																											
1251	110	2251	55	Extension for reply within first month																																																																																																																																																																																											
1252	420	2252	210	Extension for reply within second month																																																																																																																																																																																											
1253	950	2253	475	Extension for reply within third month																																																																																																																																																																																											
1254	1,480	2254	740	Extension for reply within fourth month																																																																																																																																																																																											
1255	2,010	2255	1,005	Extension for reply within fifth month																																																																																																																																																																																											
1401	330	2401	165	Notice of Appeal																																																																																																																																																																																											
1402	330	2402	165	Filing a brief in support of an appeal																																																																																																																																																																																											
1403	290	2403	145	Request for oral hearing																																																																																																																																																																																											
1451	1,510	1451	1,510	Petition to institute a public use proceeding																																																																																																																																																																																											
1452	110	2452	55	Petition to revive - unavoidable																																																																																																																																																																																											
1453	1,330	2453	665	Petition to revive - unintentional																																																																																																																																																																																											
1501	1,330	2501	665	Utility issue fee (or reissue)																																																																																																																																																																																											
1502	480	2502	240	Design issue fee																																																																																																																																																																																											
1503	640	2503	320	Plant issue fee																																																																																																																																																																																											
1460	130	1460	130	Petitions to the Commissioner																																																																																																																																																																																											
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)																																																																																																																																																																																											
1806	180	1806	180	Submission of Information Disclosure Stmt																																																																																																																																																																																											
8021	40	8021	40	Recording each patent assignment per property (times number of properties)																																																																																																																																																																																											
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))																																																																																																																																																																																											
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))																																																																																																																																																																																											
1801	770	2801	385	Request for Continued Examination (RCE)																																																																																																																																																																																											
1802	900	1802	900	Request for expedited examination of a design application																																																																																																																																																																																											
<p>1. BASIC FILING FEE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr><td>1001</td><td>770</td><td>2001</td><td>385</td><td>Utility filing fee</td><td></td></tr> <tr><td>1002</td><td>340</td><td>2002</td><td>170</td><td>Design filing fee</td><td></td></tr> <tr><td>1003</td><td>530</td><td>2003</td><td>265</td><td>Plant filing fee</td><td></td></tr> <tr><td>1004</td><td>770</td><td>2004</td><td>385</td><td>Reissue filing fee</td><td></td></tr> <tr><td>1005</td><td>160</td><td>2005</td><td>80</td><td>Provisional filing fee</td><td>160</td></tr> <tr> <td colspan="4">SUBTOTAL (1)</td> <td></td> <td>(\$ 160)</td> </tr> </tbody> </table>					Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1001	770	2001	385	Utility filing fee		1002	340	2002	170	Design filing fee		1003	530	2003	265	Plant filing fee		1004	770	2004	385	Reissue filing fee		1005	160	2005	80	Provisional filing fee	160	SUBTOTAL (1)					(\$ 160)	<p>2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE</p> <table style="width: 100%;"> <tr> <td>Total Claims</td> <td>16</td> <td>** =</td> <td>16</td> <td>X</td> <td>Fee from below</td> <td>=</td> <td>0</td> </tr> <tr> <td>Independent Claims</td> <td></td> <td>** =</td> <td>0</td> <td>X</td> <td></td> <td>=</td> <td>0</td> </tr> <tr> <td>Multiple Dependent</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td>=</td> <td>0</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr><td>1202</td><td>18</td><td>2202</td><td>9</td><td>Claims in excess of 20</td><td></td></tr> <tr><td>1201</td><td>86</td><td>2201</td><td>43</td><td>Independent claims in excess of 3</td><td></td></tr> <tr><td>1203</td><td>290</td><td>2203</td><td>145</td><td>Multiple dependent claim, if not paid</td><td></td></tr> <tr><td>1204</td><td>86</td><td>2204</td><td>43</td><td>** Reissue independent claims over original patent</td><td></td></tr> <tr><td>1205</td><td>18</td><td>2205</td><td>9</td><td>** Reissue claims in excess of 20 and over original patent</td><td></td></tr> <tr> <td colspan="4">SUBTOTAL (2)</td> <td></td> <td>(\$ 0)</td> </tr> </tbody> </table> <p><i>**or number previously paid, if greater; For Reissues, see above</i></p>					Total Claims	16	** =	16	X	Fee from below	=	0	Independent Claims		** =	0	X		=	0	Multiple Dependent				X		=	0	Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1202	18	2202	9	Claims in excess of 20		1201	86	2201	43	Independent claims in excess of 3		1203	290	2203	145	Multiple dependent claim, if not paid		1204	86	2204	43	** Reissue independent claims over original patent		1205	18	2205	9	** Reissue claims in excess of 20 and over original patent		SUBTOTAL (2)					(\$ 0)																																																																		
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																										
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																												
1001	770	2001	385	Utility filing fee																																																																																																																																																																																											
1002	340	2002	170	Design filing fee																																																																																																																																																																																											
1003	530	2003	265	Plant filing fee																																																																																																																																																																																											
1004	770	2004	385	Reissue filing fee																																																																																																																																																																																											
1005	160	2005	80	Provisional filing fee	160																																																																																																																																																																																										
SUBTOTAL (1)					(\$ 160)																																																																																																																																																																																										
Total Claims	16	** =	16	X	Fee from below	=	0																																																																																																																																																																																								
Independent Claims		** =	0	X		=	0																																																																																																																																																																																								
Multiple Dependent				X		=	0																																																																																																																																																																																								
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																										
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																												
1202	18	2202	9	Claims in excess of 20																																																																																																																																																																																											
1201	86	2201	43	Independent claims in excess of 3																																																																																																																																																																																											
1203	290	2203	145	Multiple dependent claim, if not paid																																																																																																																																																																																											
1204	86	2204	43	** Reissue independent claims over original patent																																																																																																																																																																																											
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent																																																																																																																																																																																											
SUBTOTAL (2)					(\$ 0)																																																																																																																																																																																										

SUBMITTED BY		Complete (if applicable)			
Name (Print/Type)	Robert B. Lew	Registration No. (Attorney/Agent)	28,234	Telephone	609/734-6820
Signature		Date	Dec. 30, 2003		

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

PROVISIONAL PATENT APPLICATION
ATTORNEY DOCKET PU030336

Edge Blending of Multiple DLP Projectors Using Cosine Function

The purpose of this is to displaying higher resolution image using multiple projectors. The displayed image is tiled together seamlessly using the algorithm being developed to generate an S-curve instead of the linear algorithm that has been widely used. With the S-curve the transition from one projector to the other one will be slower than a linear curve.

This invention will seam different segments of an image together seamlessly. In this algorithm the slope is slower than the linear case. Also, the transition from the output of one projector is slower than that of the second projector. This will make the seamed area better. Figure 1 and 2 defined the setup of the tiled projectors.

The widely used algorithm is using linear algorithm for the brightness. It starts with one value at one edge of projector one, up to zero to the other end of the second projector. This is shown in Figure 3.

The abrupt change in intensity is feasible in the seamed area. To transform smoothly from one projector to the other, we developed this algorithm. The algorithm is a quadratic curve, developed using the cosine function.

$$x1 = (0.5 \times \cosine(\frac{PI \times j}{overlap}) + .5)^{1/\gamma} \quad (1)$$

$$x2 = (1 - (0.5 \times \cosine(\frac{PI \times j}{overlap}) + .5))^{1/\gamma} \quad (2)$$

Where the overlap is the seaming area in number of pixels, j is the pixels range from 1:overlap, and gamma is the gamma correction function. Equation 1 is the value of the overlapped area of projector 1, while equation 2 is the value of the overlapped pixel of projector 2.

PROVISIONAL PATENT APPLICATION
ATTORNEY DOCKET PU030336

Equation 1 is applied to the input image before it is displayed or processed in the DLP projector1 as

$$\text{Overlaped_pixel_from_projector1} = \text{Pixel_value} * x1 \quad (3)$$

The 2nd projector input image is processed the inverse of the equation 1 (i.e. equation 2). However, the total sum of the both projectors output added together is one. When adding to one for the S-curve would generate the desired pixel value, which will show as if the output is from one projector. The function gradually transition from one to zero, and the other projector from zero to one. Each projector's pixel input is multiplied by the smoothing function. The gradual level depends on the curve used and the slop of the curve. In general it is gradual transition one bit at a time.

The gamma correction of each projector is applied to the smoothing curve before it is applied to the input signal

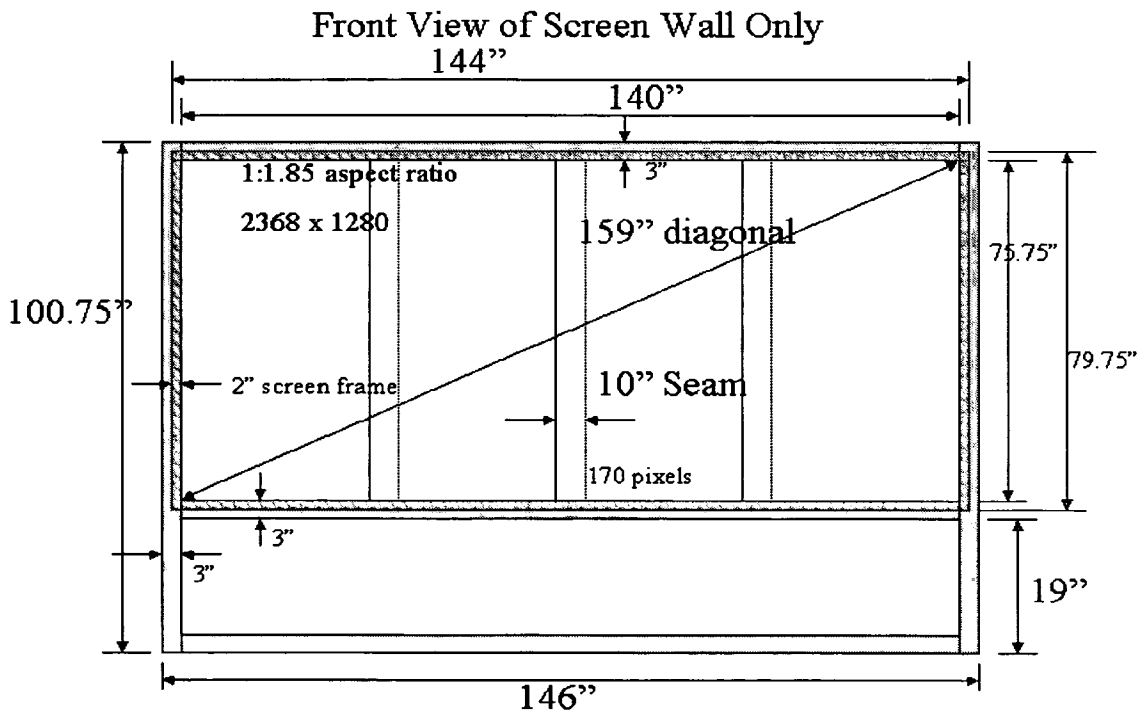


Figure 1

PROVISIONAL PATENT APPLICATION
ATTORNEY DOCKET PU030336

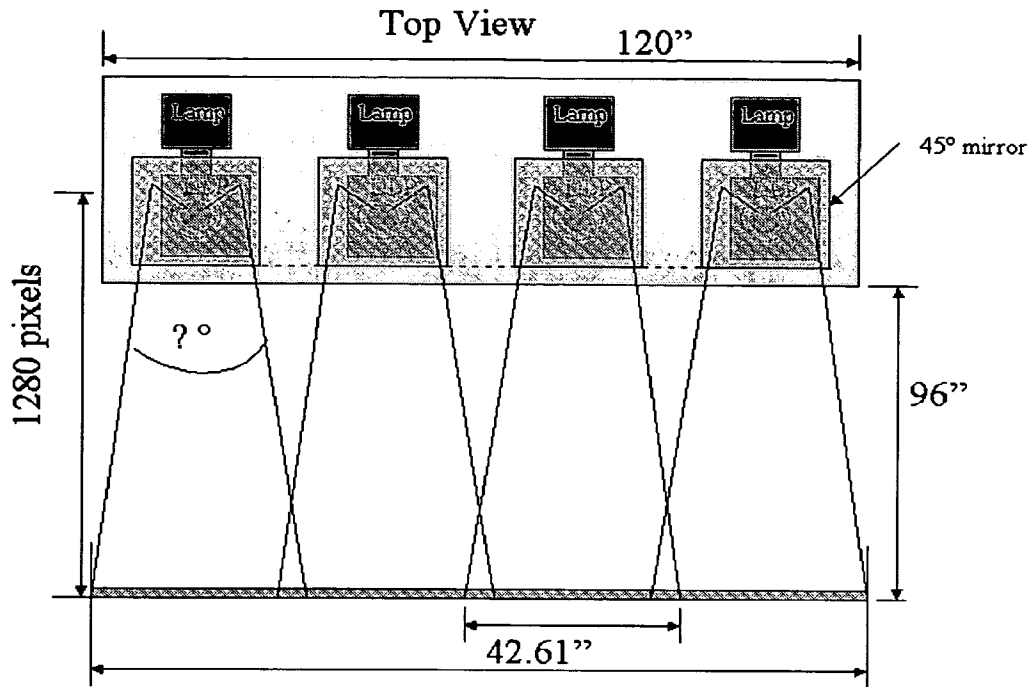


Figure 2

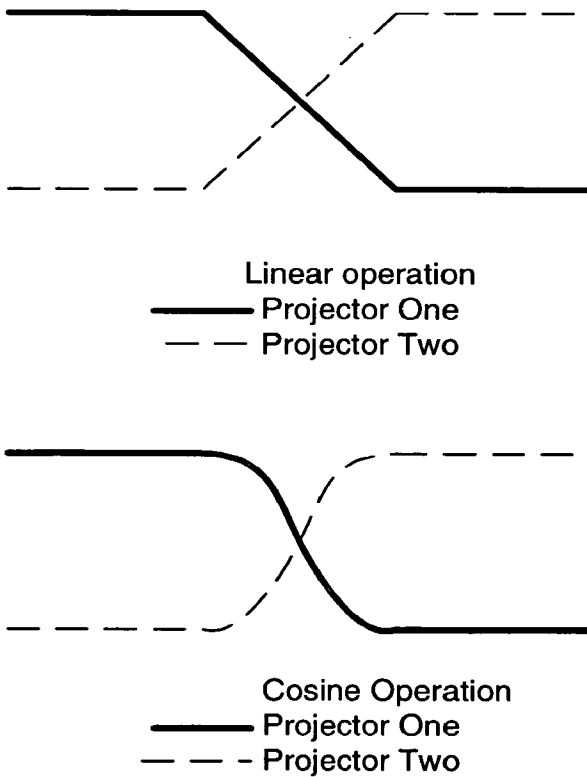


Figure 3: The seaming algorithms